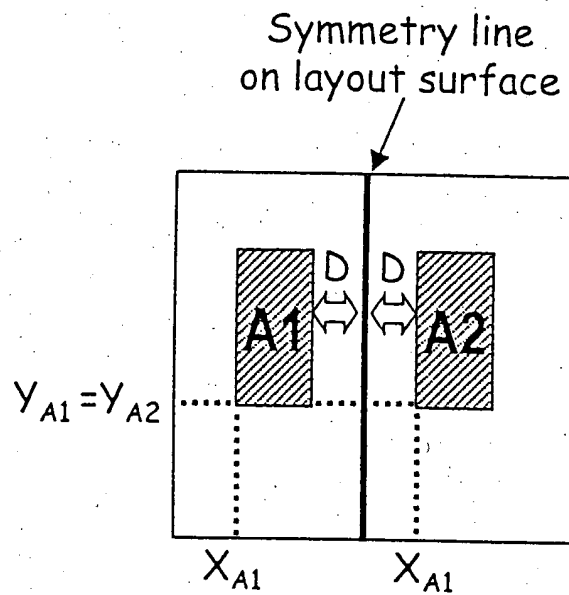


Fig 1
(Prior Art)

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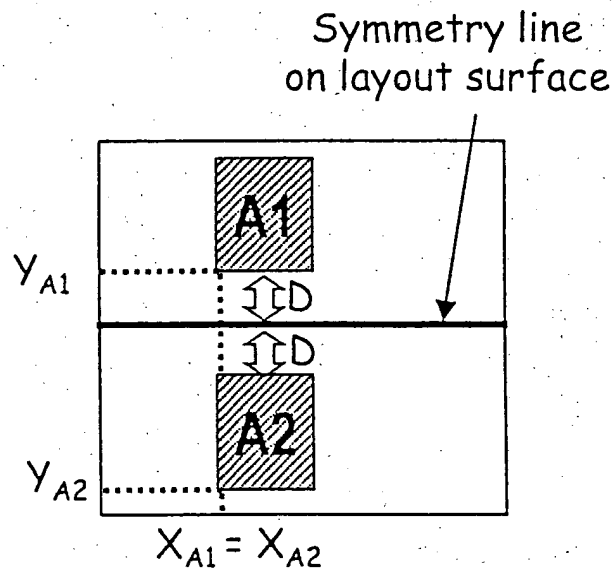


Components A1 and A2 are
symmetrically placed about
the vertical symmetry line

Fig 2

(prior art)

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Components A1 and A2 are
symmetrically placed about
the horizontal symmetry line

Fig 3

(prior art)

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Fig 4



One example component "R"

(prior art)



8 possible geometric orientations
for any component "R"

Fig 5

(prior art)

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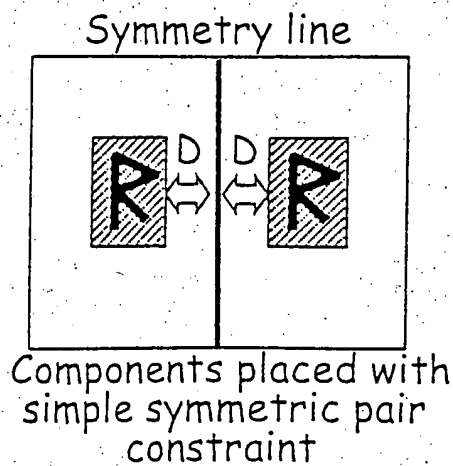


Fig 6

(prior art)

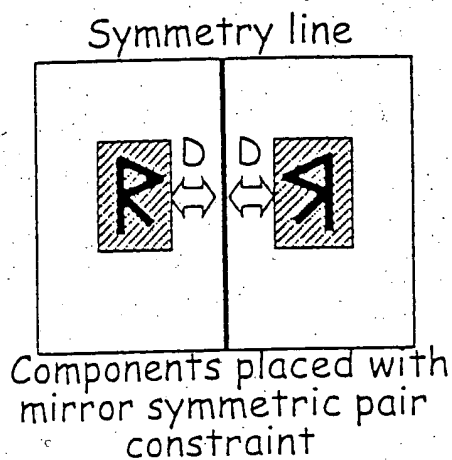


Fig 7

(prior art)

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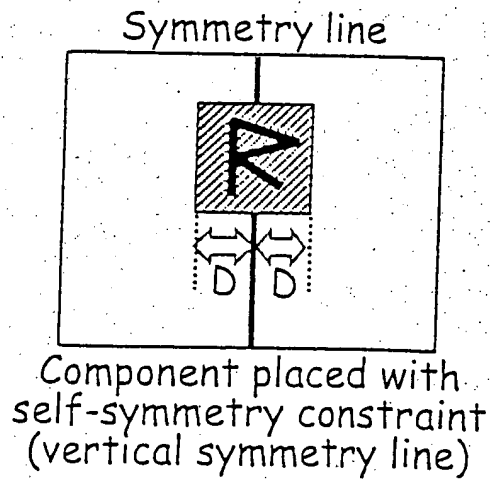


Fig 8
(prior art)

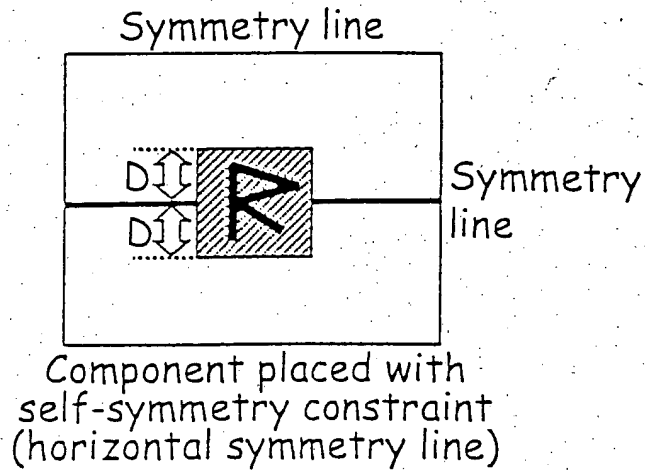


Fig 9

(prior art)

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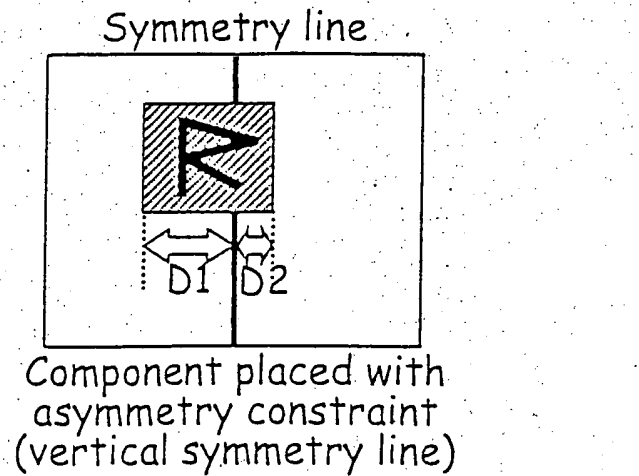


Fig 10
(prior art)

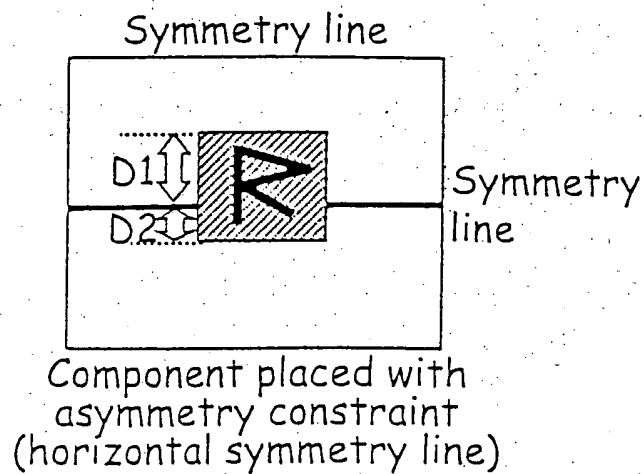
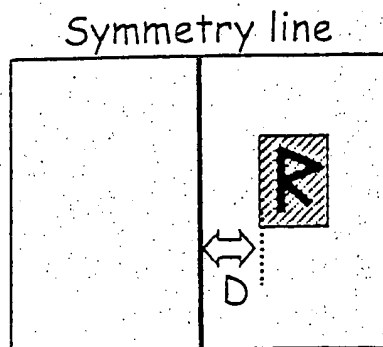


Fig 11
(prior art)

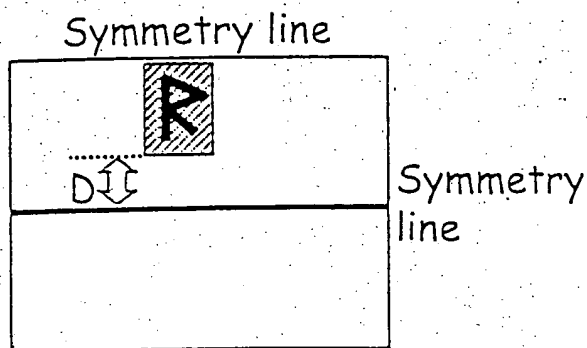
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Component placed with
fixed symmetric offset constraint
(vertical symmetry line)

Fig 12

(prior art)



Component placed with
fixed symmetric offset constraint
(horizontal symmetry line)

Fig 13

(prior art)

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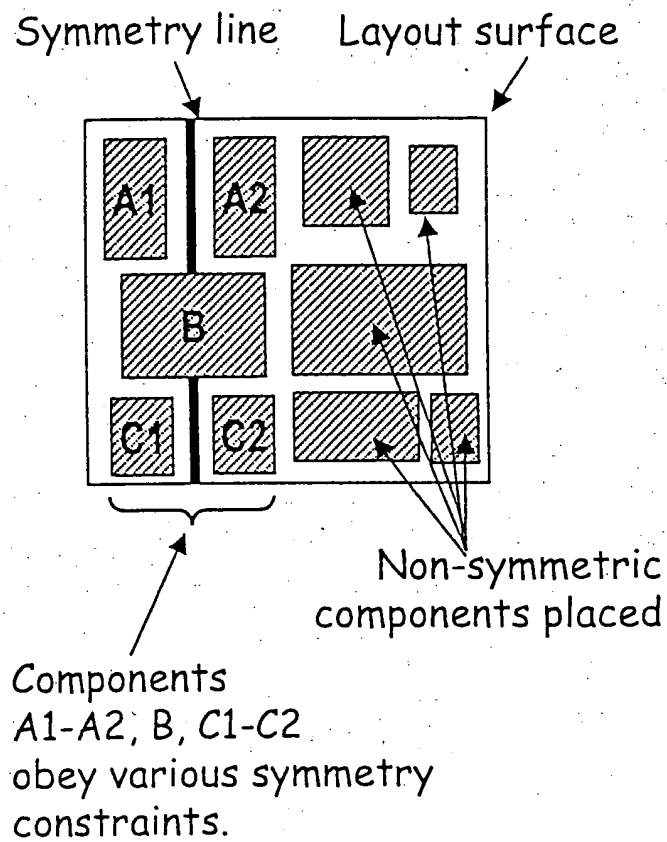


Fig 14
(prior art)

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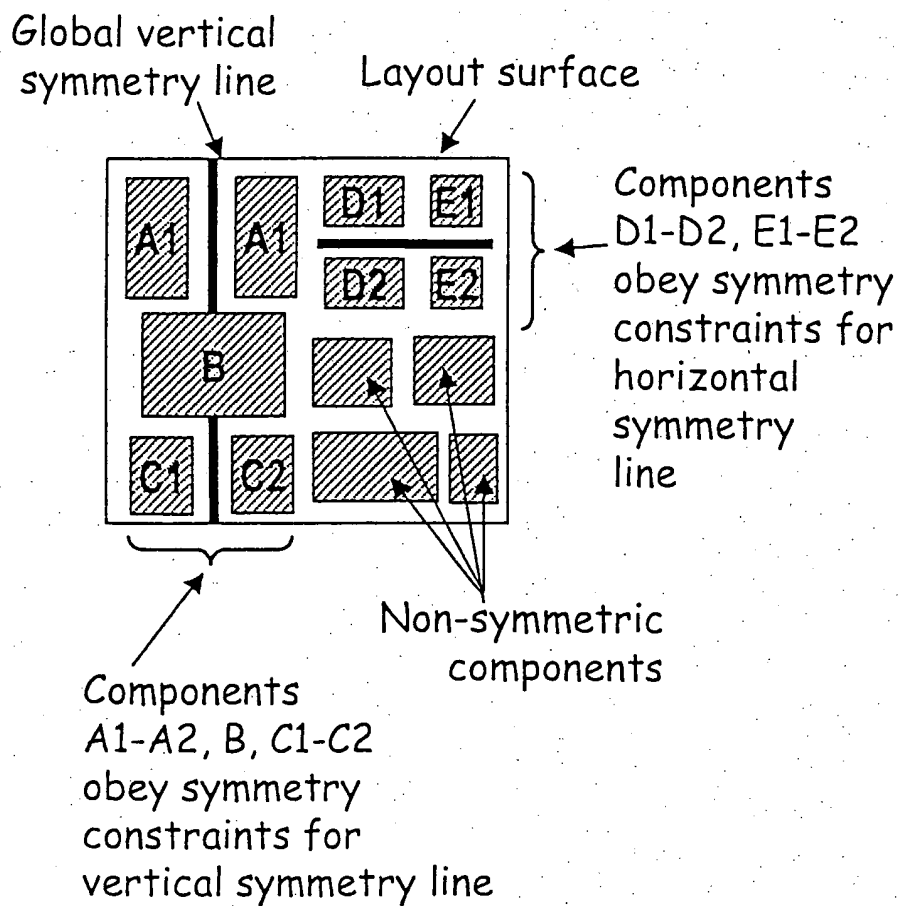


Fig 15

(prior art)

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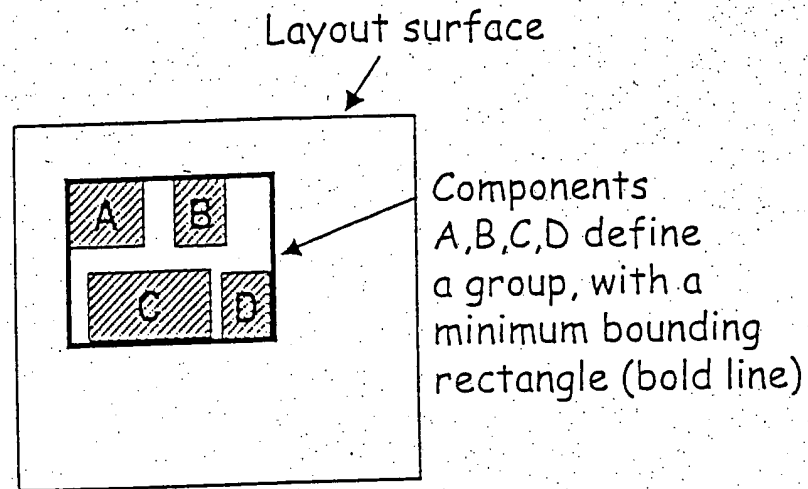


Fig 16
(prior art)

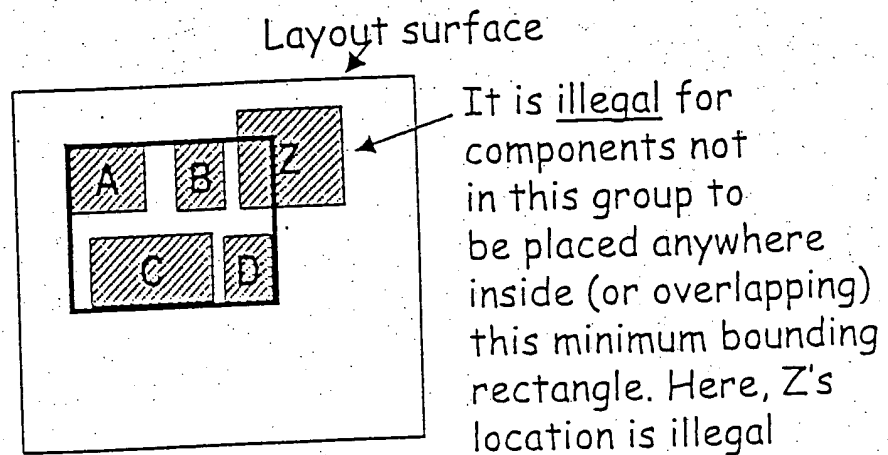
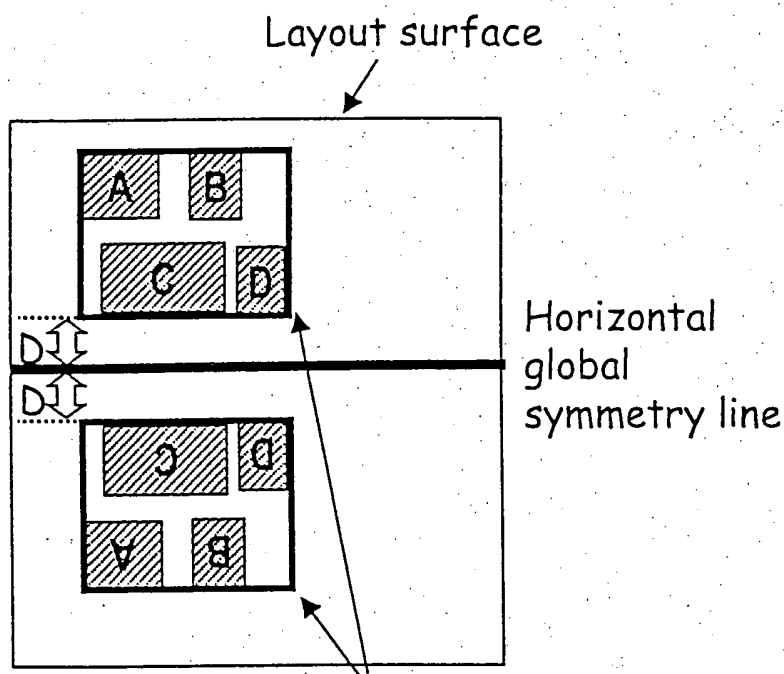


Fig 17
(prior art)

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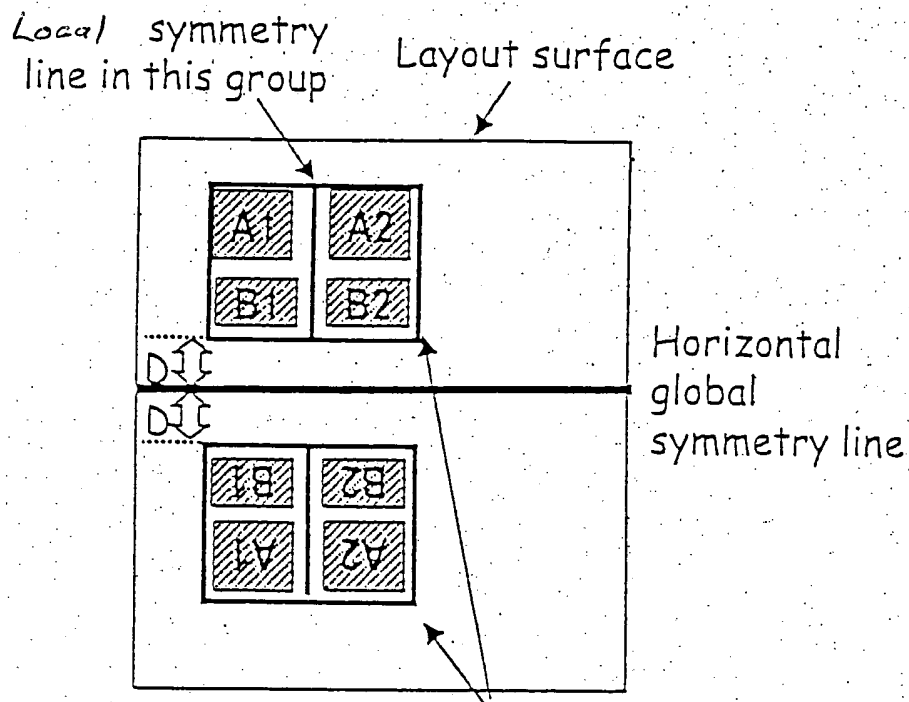


Group A,B,C,D and
its symmetric sibling
placed with a
group symmetric pair
constraint, relative to a
global horizontal symmetry line

Fig 18

(prior art)

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Each Group A1,A2,B1,B2 has a local symmetry line and the entire group and its symmetric sibling are placed with a group symmetric pair constraint relative to a global horizontal symmetry line

Fig 19

(Prior art)

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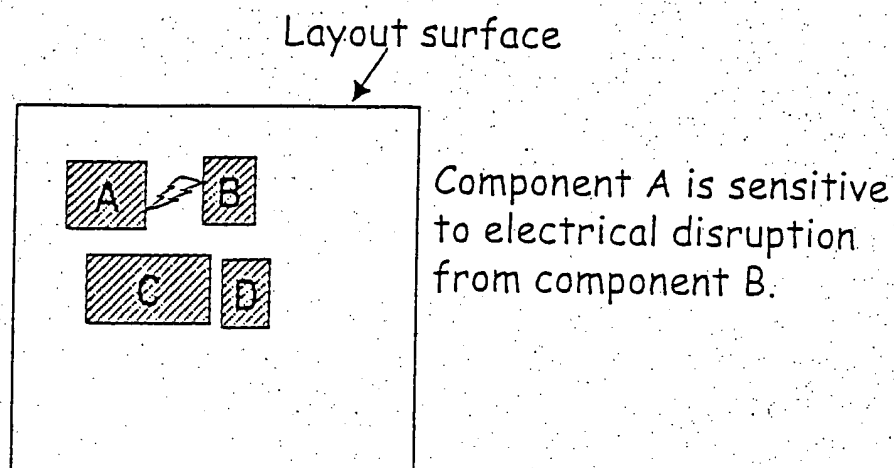


Fig 20
(prior art)

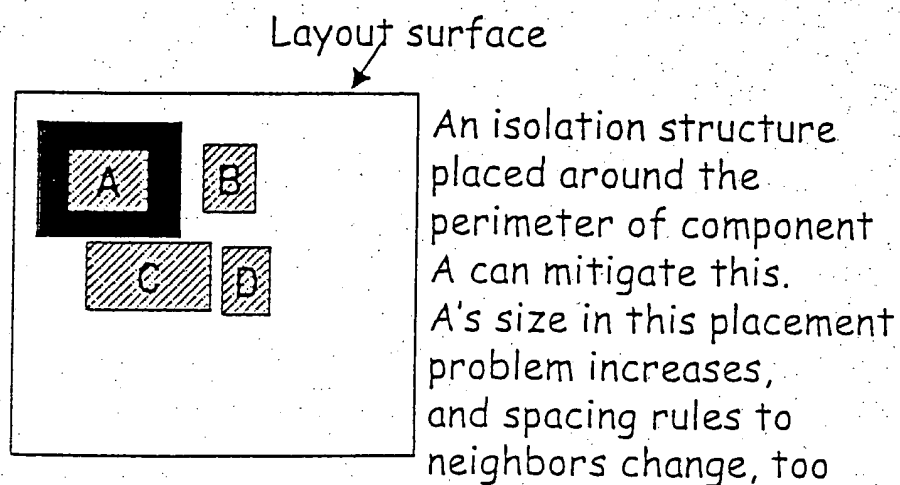


Fig 21
(prior art)

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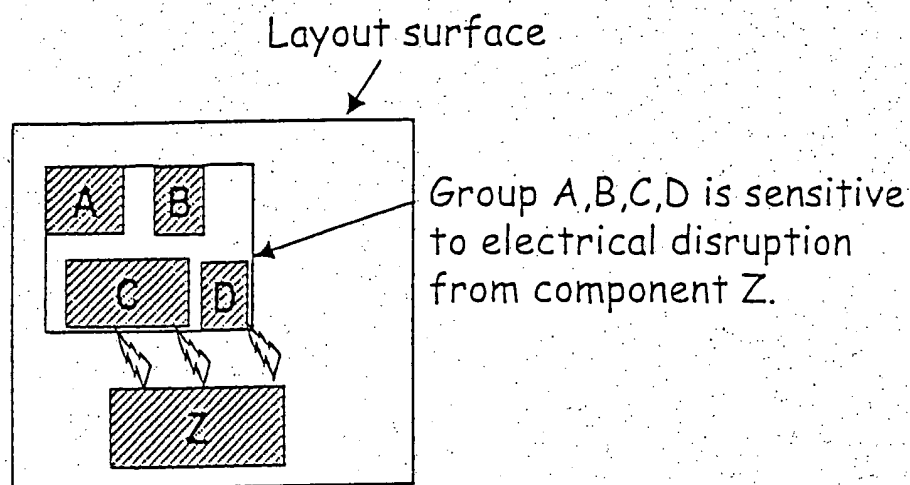


Fig 22
(prior art)

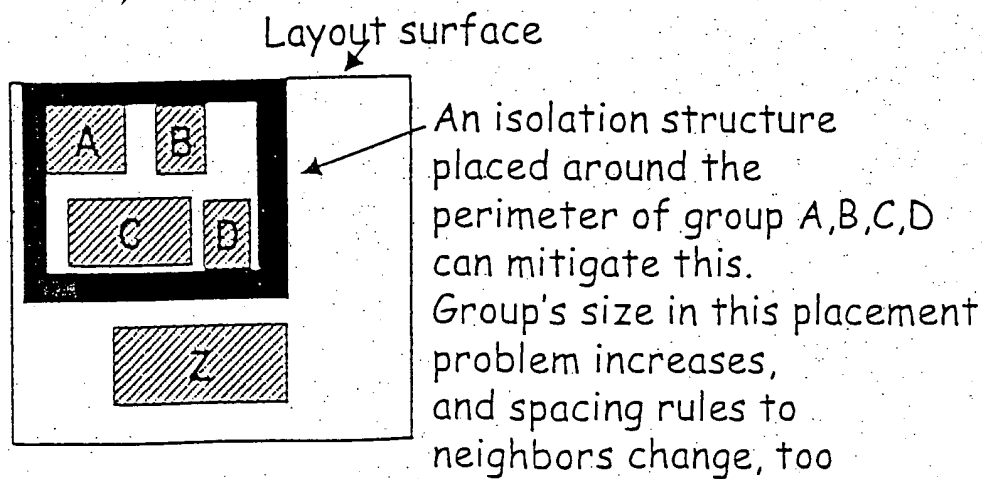


Fig 23
(Prior art)

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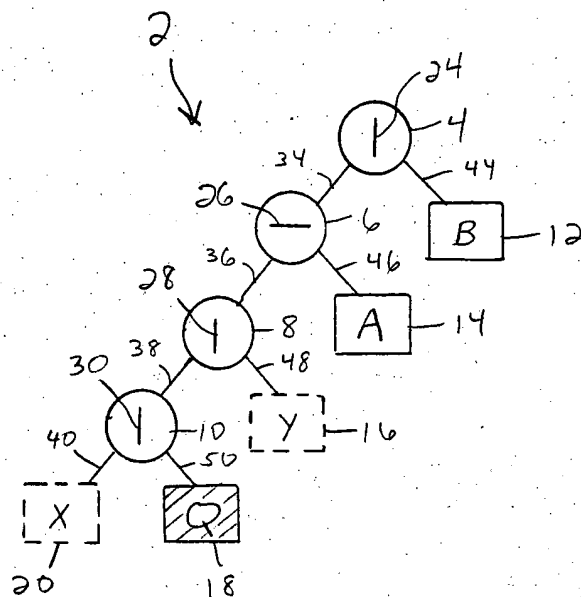
Fig. 24




<u>Component</u>	<u>Placement Constraint</u>	<u>Size</u>	
		<u>Width</u>	<u>Height</u>
A	Non-Symmetric	2	2
B	Non-Symmetric	1	5
Q	Symmetric*	3	2
X	Non-Symmetric	2	5
Y	Non-Symmetric	1	5

* Component can be designated for pair-symmetric, self-symmetric, asymmetric, or fixed symmetric offset placement.

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Fig 25



-  = place on left side of global symmetry line 24
-  = place on right side of global symmetry line 24
-  = place pair symmetrically on both sides of global symmetry line 24

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Fig 26

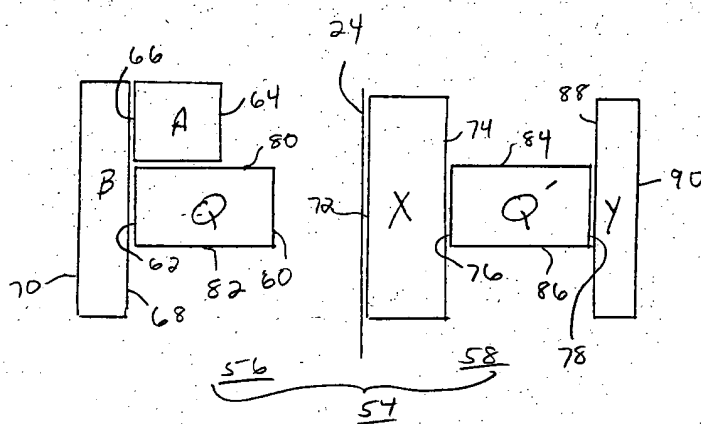
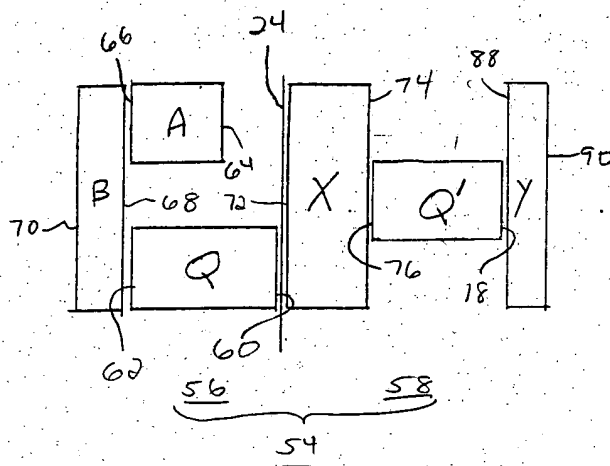
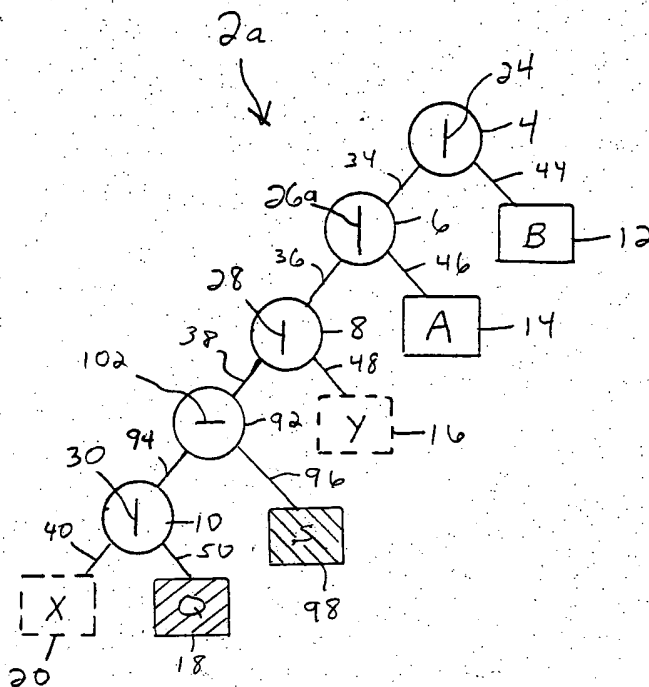




Fig 27


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
Fig 28



 = place on left side of global symmetry line 24

 = place on right side of global symmetry line 24

 = place pair-symmetrically on both sides of global symmetry line 24

 = place self-symmetrically on both sides of global symmetry line 24

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Fig 29

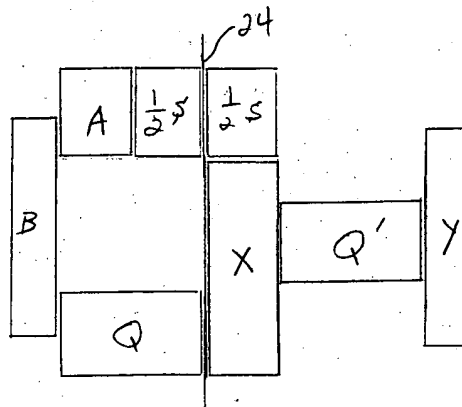
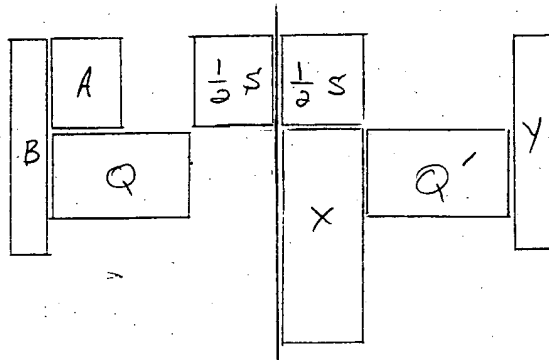


Fig 30



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Fig 32

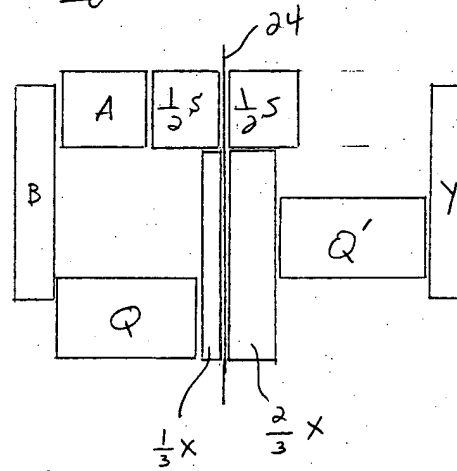
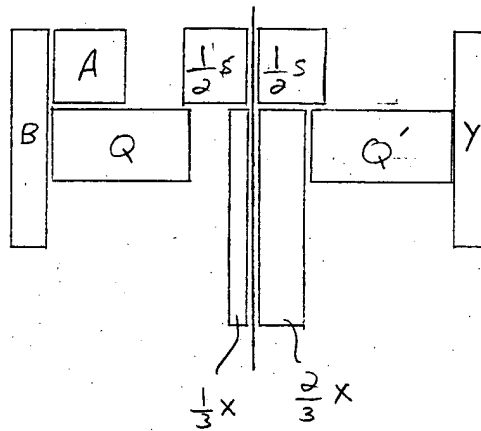
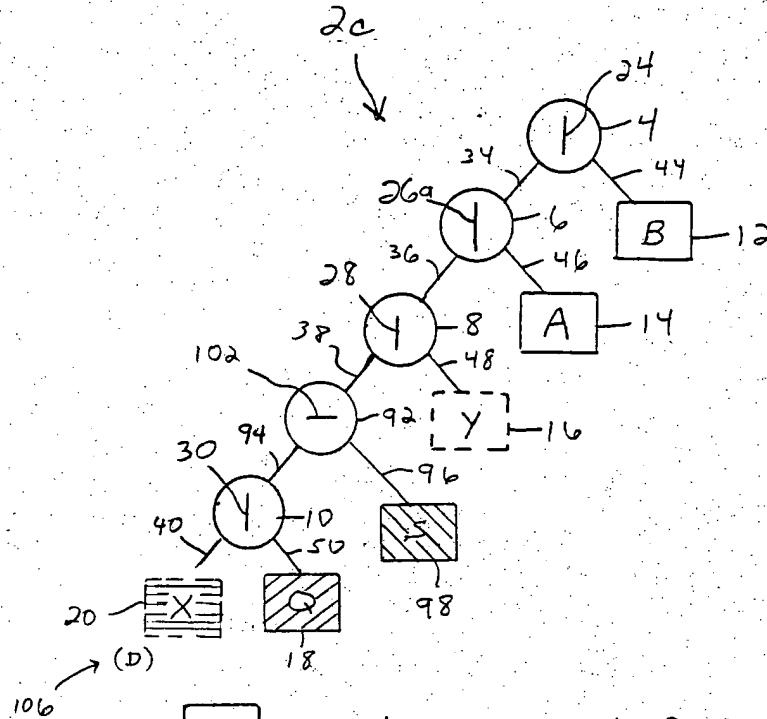



Fig 33





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
Fig 34




 = place on left side of global symmetry line 24

 = place on right side of global symmetry line 24

 = place pair-symmetrically on both sides of global symmetry line 24

 = place self-symmetrically on both sides of global symmetry line 24

 = place fixed symmetric offset to one side of global symmetry line 24 (dashed outline = place on right side; solid outline = place on left side)

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Fig 35

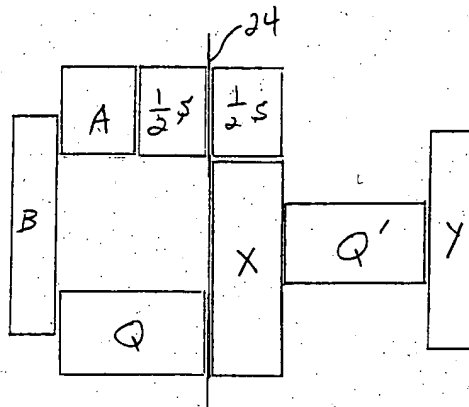
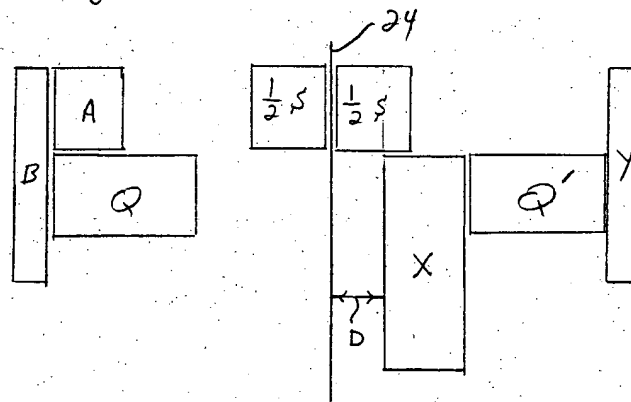


Fig 36



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CIRCUITS AND PACKAGES"

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Fig 38

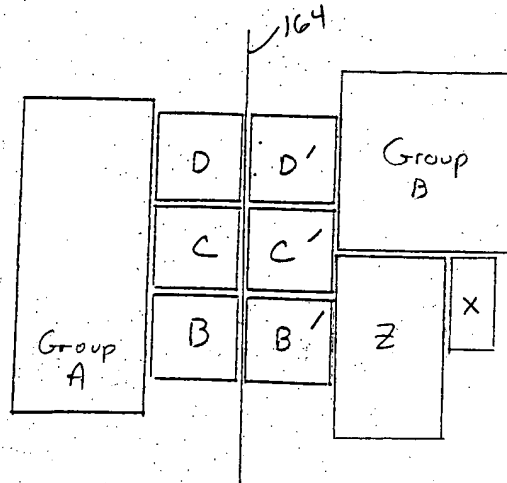
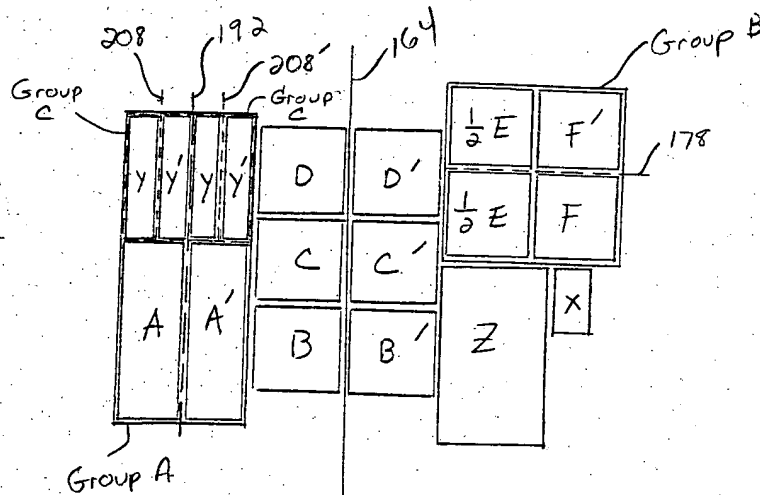


Fig 39



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Fig 40a

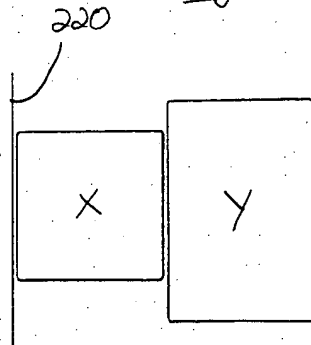
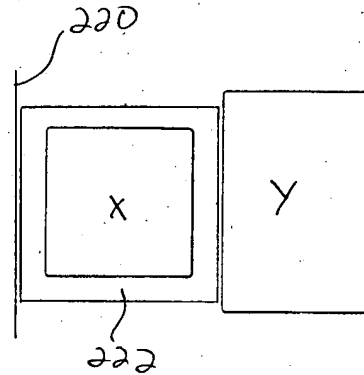


Fig 40b

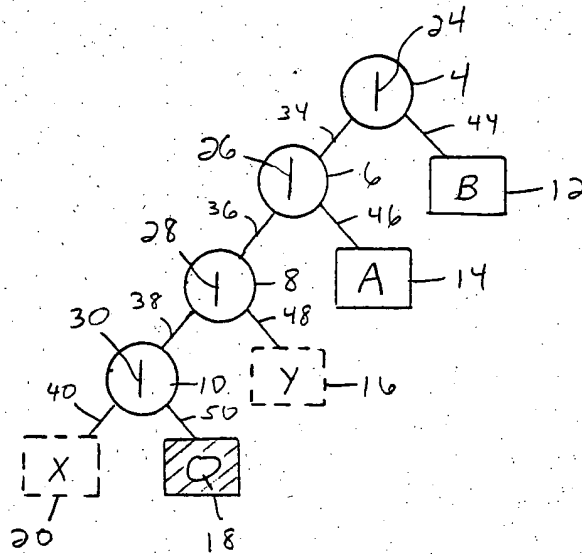



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CIRCUITS AND PACKAGES"


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Fig 41



 = place on left side of global symmetry line 24

 = place on right side of global symmetry line 24

 = place pair symmetrically on both sides of global symmetry line 24

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Fig 42

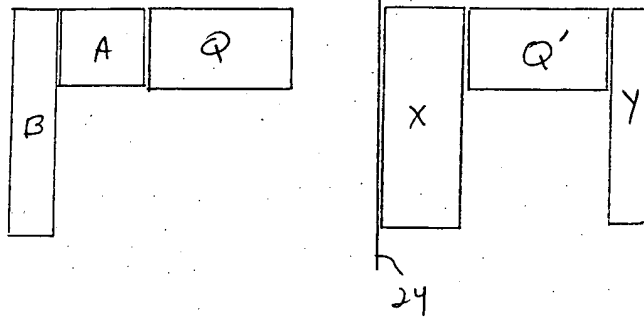


Fig 44

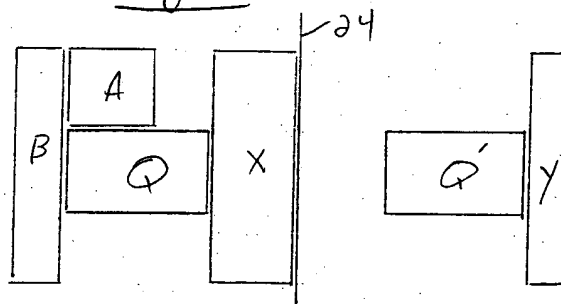


Fig 46

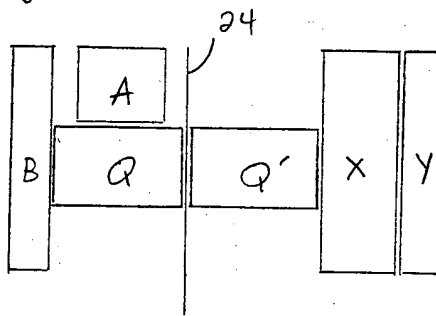
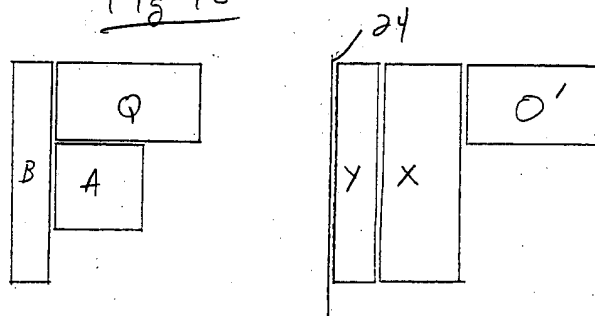


Fig 48

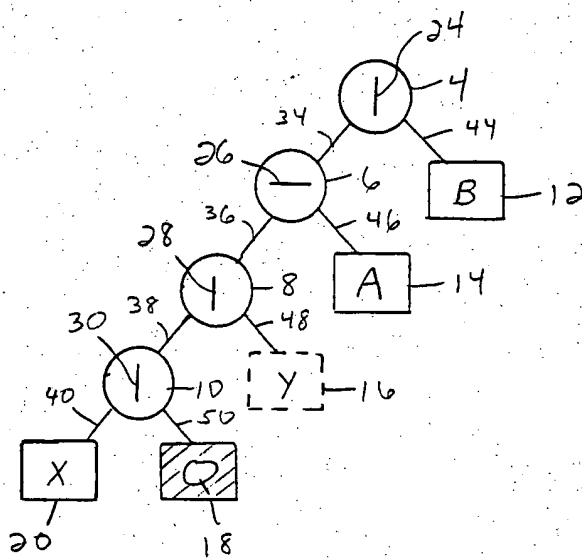



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
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Fig 43



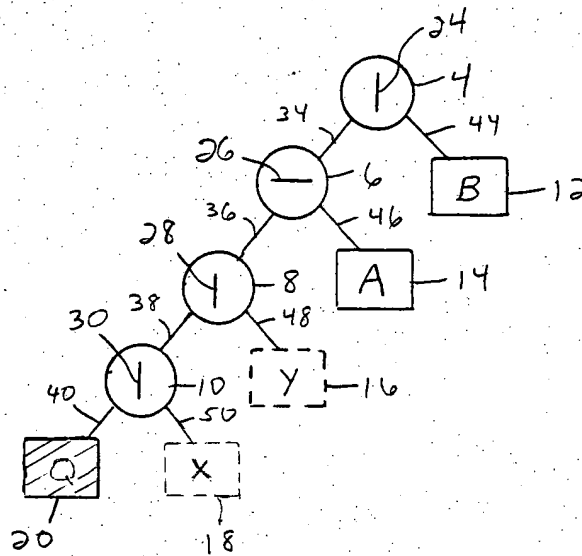
 = place on left side of global symmetry line 24




 = place on right side of global symmetry line 24

 = place pair symmetrically on both sides of global symmetry line 24

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Fig 45



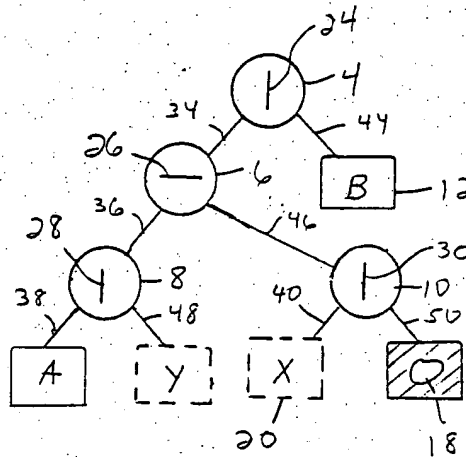
-  = place on left side of global symmetry line 24
-  = place on right side of global symmetry line 24
-  = place pair symmetrically on both sides of global symmetry line 24




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Fig 47



-  = place on left side of global symmetry line 24
-  = place on right side of global symmetry line 24
-  = place pair symmetrically on both sides of global symmetry line 24